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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,664

12/10/2003

Douglas T. Gjerde

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PHYNEXUS, INC.
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EXAMINER

HYUN, PAUL SANG HWA

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

07/07/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,664	Applicant(s) GJERDE ET AL.	
	Examiner PAUL S. HYUN	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7-11,15-20,23,25,27-29 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) 17-20,23,25 and 27-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-11,15,16 and 31-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Remarks filed by Applicant on March 27, 2009 has been acknowledged. Claims 1, 2, 7-11, 15-20, 23, 25, 27-29 and 31-38 remain pending wherein claims 17-20, 23, 25 and 27-29 remain withdrawn pursuant to a previous restriction requirement. Applicant's arguments have been fully considered, but the rejections are maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **1, 2, 7-9, 11, 31, 34, 35 and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiao et al. (US 2002/0164824 A1) in view of Henry et al. (US 2002/0176800 A1).

Xiao et al. disclose an array of capillary tubes, each capillary tube having a first end, a second end, and an inner surface having extraction agents immobilized thereto (see Abstract and Fig. 1). The extraction agents (e.g. proteins and antibodies (see [0084])) are configured to bind specific biomolecules (e.g. proteins, virus (see [0168])). The capillary tube disclosed by Xiao et al. differs from the claimed invention in that Xiao et al. do not disclose that the capillary tube is coiled.

Henry et al. disclose a capillary for conducting liquid chromatography wherein the capillary is coiled or spiral in shape (see Abstract). The coil radius of the capillary can be 1 cm (see [0033]). The reference discloses that the coiling consolidates the lengths of capillaries into small spaces for convenient shipping and temperature control (see

Art Unit: 1797

[0008]). In light of the disclosure of Henry et al., it would have been obvious to coil the capillary disclosed by Xiao et al. having a coil radius of 1 cm.

Claim **10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Xiao et al. in view of Henry et al. as applied to claims 1, 2, 7-9, 11, 31, 34, 35 and 38 and further in view of Smith et al. (US 4,569,794).

Neither Xiao et al. nor Henry et al. disclose the use of metal ions to bind analytes.

Smith et al. disclose the well-known method of immobilized metal ion affinity chromatography (IMAC) (see lines 5-20, col. 1). The reference discloses that IMAC uses immobilized metal ions to bind proteins. In light of the disclosure of Smith et al., it would have been obvious to one of ordinary skill in the art to use metal ions as the antibodies in the modified Xiao et al. capillary to bind proteins that have affinity towards the metal ions.

Claims **15, 16, 32, 33, 36 and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiao et al. in view of Henry et al. as applied to claims 1, 2, 7-9, 11, 31, 34, 35 and 38, and further in view of Kumar et al. (US 5,976,896).

Although Xiao et al. disclose that fluid movement through the capillary can be facilitated by a pump (see [0110]), neither Xiao et al. nor Henry et al. disclose the use of a syringe pump.

Kumar et al. disclose the use of a syringe pump to move fluid through a capillary for purposes of conducting immunoassay (see example 12, col. 44). In light of the disclosure of Kumar et al., it would have been obvious to provide the modified Xiao et al. apparatus with a syringe pump to facilitate fluid movement through the capillary.

Response to Arguments

Applicant's arguments with respect to the claims have been fully considered but they are not persuasive. Applicant argues that one of ordinary skill in the art could not arrive at the claimed invention based on the teachings of Xiao et al. and Henry et al. Specifically, Applicant argues that Xiao et al. disclose an open capillary tube whereas the coiled capillary disclosed by Henry et al., due to bending stress, cannot be manufactured without packing the capillary with solid phase material. Thus, Applicant argues that the hollow capillary disclosed by Xiao et al. cannot be coiled based on the teachings of Henry et al. This argument is not persuasive. There is no evidence in the disclosure of Henry et al. indicating that a capillary must be packed with solid phase material before it can be coiled. Applicant relies on [0064] for support that the capillary disclosed by Henry et al. must be filled with solid phase prior to bending. This argument is not persuasive because [0064] of Henry et al. is only concerned with investigating the effect that coiling would have on capacity of the capillary. In fact, the subsequent paragraph explicitly discloses that the capillaries mentioned in [0064] can be coiled prior to packing the capillary with solid phase material (see [0065]). In addition, Henry et al. disclose that a coiled capillary can be fitted with sleeve 33 to prepare a packed column,

Art Unit: 1797

which suggests that the coiled capillary is structurally stable without packing it with solid phase material (see [0058]).

Applicant's arguments and assertions that the act of bending a capillary to a bend radius of 2 cm is extremely difficult without taking the precautions as disclosed in the instant application have been fully considered. However, in light of the disclosure of Henry et al. that a capillary can be packed subsequent to bending the capillary, the Examiner maintains the position that one of ordinary skill in the art would be able to arrive at the claimed invention based on the disclosure of Xiao et al. and Henry et al. Specifically, the Examiner maintains the position that one of ordinary skill in the art would be able to manufacture a hollow capillary having a bend radius of 2 cm based on the teachings of Henry et al. For the foregoing reasons, the rejections are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL S. HYUN whose telephone number is (571)272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul S Hyun/
Examiner, Art Unit 1797

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797